

WHAT IS CLAIMED IS:

1. A cellular system using a code division multiple access (CDMA) scheme, comprising:
N (N is a positive integer) pilot channels for transmitting reference signals whose transmission signals are known in advance; and
M (M is a positive integer) data channels for transmitting information,
wherein each of said M data channels is made to correspond to one or a plurality of said N pilot channels.

2. A system according to claim 1, wherein each of said N data channels is made to correspond to one of said M pilot channels which goes through the same transmission path.

3. A system according to claim 1, wherein said pilot channel is used for coherent detection of at least said data channel to which said pilot channel is made to correspond.

4. A system according to claim 1, wherein said pilot channel is used for transmission power control on at least said data channel to which said pilot channel is made to correspond.

5. A system according to claim 1, wherein a correspondence between said pilot channel and said data channel is newly determined at least immediately before

and every time said data channel is used.

6. A system according to claim 1, wherein a correspondence between said pilot channel and said data channel can be changed during use of said data channel by
5 notifying a new correspondence.

7. A system according to claim 1, wherein said pilot channel stops transmission when use of all data channels made to correspond to said pilot channel is terminated.

8. A system according to claim 2, wherein when a
10 pilot channel which goes through the same transmission path as that for a data channel to be newly used is not being used for transmission, a new pilot channel which goes through the same transmission path as that for said data channel is generated and used to start transmission.

15 9. A system according to claim 1, wherein when channels used for transmission/reception with the same antenna directivity are determined as channels which go through the same transmission path.

10. A system according to claim 2, wherein when
20 channels used for transmission/reception with the same antenna directivity are determined as channels which go through the same transmission path.

11. A cellular system using a code division multiple access (CDMA) scheme, comprising:

25 transmission means having N (N is a positive integer)

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pilot channels;

transmission/reception means having M (M is a positive integer) data channels;

antenna means having L (L is a positive integer)

5 types of directivity patterns; and

notification means for notifying a correspondence between said data channels and said pilot channels,

wherein information to be transmitted/received by using each of said M data channels is transmitted/received 10 by selecting an optimal pattern from the L types of directivity patterns in accordance with a position of a mobile terminal used for communication,

a reference signal to be transmitted by using each of said N pilot channels is transmitted by selecting one 15 pilot channel for each directivity pattern used for said data channel, and

said notification means notifies a pilot channel used for transmission with the same directivity pattern as that for said data channel.

20 12. A reference signal transmission method in a cellular system using a code division multiple access (CDMA) scheme of transmitting N (N is a positive integer) reference signals whose transmission signals are known in advance by using pilot channels, and transmitting M (M is 25 a positive integer) pieces of information by using data

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channels, comprising the step of
making each of said M data channels correspond to one
or a plurality of said N pilot channels.

13. A reference signal transmission method in a
5 cellular system using a code division multiple access
(CDMA) scheme of transmitting reference signals by using N
(N is a positive integer) pilot channels,
transmitting/receiving information by using M (M is a
positive integer) data channels, performing
10 transmission/reception by using said data channels through
antenna means having L (L is a positive integer) types of
directivity patterns, and notifying a correspondence
between said data channels and said pilot channels through
notification means, comprising the steps of:
15 transmitting/receiving information to be
transmitted/received by using each of said M data channels
by selecting an optimal pattern from the L types of
directivity patterns in accordance with a position of a
mobile terminal used for communication;
20 transmitting a reference signal to be transmitted by
using each of said N pilot channels by selecting one of
said pilot channels for each directivity pattern which is
being used on said data channel; and
causing said notification means to notify a pilot
25 channel which is being used for transmission with the same

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directivity pattern as that for said data channel.

~~14.~~ A base station apparatus in a cellular system using a code division multiple access (CDMA), comprising:

N (N is a positive integer) pilot channels for transmitting reference signals whose transmission signals are known in advance; and

M (M is a positive integer) data channels for transmitting information,

wherein each of said M data channels is made to correspond to one or a plurality of said N pilot channels.

~~15.~~ A base station apparatus in a cellular system using a code division multiple access (CDMA) scheme, comprising:

transmission means having N (N is a positive integer) pilot channels;

transmission/reception means having M (M is a positive integer) data channels;

antenna means having L (L is a positive integer) types of directivity patterns; and

notification means for notifying a correspondence between said data channels and said pilot channels,

wherein information to be transmitted/received by using each of said M data channels is transmitted/received by selecting an optimal pattern from the L types of directivity patterns in accordance with a position of a

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~~15.~~ A base station apparatus in a cellular system using a code division multiple access (CDMA) scheme, comprising:

15 pilot channels;

transmission/reception means having M (M is a positive integer) data channels;

antenna means having L (L is a positive integer) types of directivity patterns; and

20 notification means for notifying a correspondence between said data channels and said pilot channels,

wherein information to be transmitted/received by using each of said M data channels is transmitted/received by selecting an optimal pattern from the L types of directivity patterns in accordance with a position of a

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mobile terminal used for communication,

a reference signal to be transmitted by using each of said N pilot channels is transmitted by selecting one pilot channel for each directivity pattern used for said data channel, and

said notification means notifies a pilot channel used
for transmission with the same directivity pattern as that
for said data channel.

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